

Honors Chemistry Quiz: Chapter 2

Name: KEY Period: ____ Date: ____

This quiz is worth 48 points; each correct multiple-choice response is 2 points, fill in the blank responses are 1 point each. Only those quizzes completed in black ink will be graded. Good luck!

1) What does "X" represent in the following symbol?



- A) mercury
B) chlorine
D C) scandium
D) bromine
E) selenium

2) Determine the number of protons, neutrons and electrons in the following:



- A) $p^+ = 18$ $n^0 = 18$ $e^- = 22$
B) $p^+ = 18$ $n^0 = 22$ $e^- = 18$
B C) $p^+ = 22$ $n^0 = 18$ $e^- = 18$
D) $p^+ = 18$ $n^0 = 22$ $e^- = 40$
E) $p^+ = 40$ $n^0 = 22$ $e^- = 18$

3) What element is defined by the following information?

$$p^+ = 17 \quad n^0 = 20 \quad e^- = 17$$

- A) calcium
C B) rubidium
C) chlorine
D) neon
E) oxygen

4) How many neutrons are in gallium?

A) 39

B) 41

C) 42

D) 41.9

E) 75

$^{70}_{31}\text{Ga}$

5) Give the symbol for fluorine.

A) F

B) Fl

C) Fo

D) Fu

E) Fr

6) What element has the symbol Mn?

A) Magnesium

B) Molybdenum

C) Mendelevium

D) Manganese

E) Meitnerium

7) What species is represented by the following information?

$$p^+ = 13 \quad n^0 = 14 \quad e^- = 10$$

- B
- A) Si^{4+}
 - B) Al^{3+}
 - C) Ne
 - D) Si
 - E) Mg^{2+}

8) Predict the charge that a magnesium ion would have.

- D
- A) 5^-
 - B) 1^+
 - C) 1^-
 - D) 2^+
 - E) 3^+

Group II $\rightarrow 2^+$

9) Predict the charge that a phosphorus ion would have.

- C
- A) 6^-
 - B) 2^-
 - C) 3^-
 - D) 2^+
 - E) 1^+

10) Give the number of electrons in As³⁻.

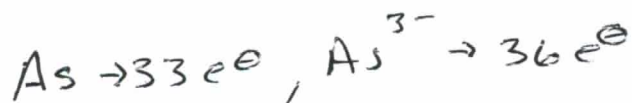
A) 33

B) 32

C) 19

D) 15

E) 36



E

11) Which of the following elements is NOT a metal?

A) Ba

B) Mg

C) Te

D) Pb

E) Ga

C

12) Which of the following elements is an alkaline earth metal?

A) Cs

B) Cu

C) Ti

D) Sr

E) Br

D

13) Which of the following elements is a metalloid?

A) Al

B) Ga

C) C

D) Sn

E) Sb

E

14) Which of the following is a transition element?

A) In

B) Sn

C C) W

D) U

E) Pr

15) Which of the following statements is FALSE?

A) Anions are usually larger than their corresponding atom. ✓

B) Metals tend to form cations. ✓

D D) Atoms are usually larger than their corresponding cation. ✓

D) The halogens tend to form 1+ ions. ✗

E) Nonmetals tend to gain electrons.

16) The atomic mass for selenium is

A) 32.07

B) 118.71

E E) 44.96

D) 14

E) 78.96

17) Calculate the atomic mass of element "X", if it has 2 naturally occurring isotopes with the following masses and natural abundances:

X-45 44.8776 amu 32.88%

X-47 46.9443 amu 67.12%

$$\begin{aligned}\text{Atomic mass} &= (0.3288)(44.8776 \text{ amu}) \\ &+ (0.6712)(46.9443 \text{ amu}) \\ &= 14.75575 + 31.50901 \\ &= 46.2648 \text{ amu}\end{aligned}$$

A) 46.26 amu

B) 45.91 amu

C) 46.34 amu

D) 46.84 amu

E) 44.99 amu

18) Which of the following contains the MOST atoms? You shouldn't need to do a calculation here.

A) 10.0 g Ne

B) 10.0 g Xe

C) 10.0 g Ar

D) 10.0 g Kr

E) 10.0 g Mg

19) How many ^{sulfur} atoms are contained in 3.75 moles of sulfur?

A) 6.23×10^{24} sulfur atoms

B) 2.26×10^{24} sulfur atoms

C) 1.61×10^{23} sulfur atoms

D) 2.44×10^{26} sulfur atoms

E) 6.50×10^{25} sulfur atoms

$$\begin{aligned}?\text{ S atoms} &= 3.75 \text{ mol S} \times \frac{6.022 \times 10^{23} \text{ S atoms}}{1 \text{ mol S}} \\ &= 2.26 \times 10^{24} \text{ S atoms}\end{aligned}$$

20) What mass (in g) does 3.99 moles of Ne have?

A) 334 g

B) 476 g

C) 211 g

D) 240 g

E) 81 g

$$\begin{aligned} ? \text{ g Ne} &= 3.99 \text{ mol Ne} \times \frac{20.18 \text{ g Ne}}{1 \text{ mol Ne}} \\ &= 80.5 \text{ g Ne} \end{aligned}$$

21) How many Na atoms are contained in 97.9 g of Na?

A) 5.90×10^{25} Na atoms

B) 7.09×10^{21} Na atoms

C) 8.49×10^{24} Na atoms

D) 4.27×10^{22} Na atoms

E) 2.56×10^{24} Na atoms

$$\begin{aligned} ? \text{ Na atoms} &= 97.9 \text{ g Na} \times \frac{1 \text{ mol Na}}{23.00 \text{ g Na}} \times \frac{6.022 \times 10^{23} \text{ Na atoms}}{1 \text{ mol Na}} \\ &= 2.56 \times 10^{24} \text{ Na atoms} \end{aligned}$$

22) The mass spectrometer is very similar in function to what experiment we discussed at the start of chapter 2?

A) Millikan's Oil-Drop experiment

B) J.J. Thomson's Cathode-Ray Tube experiment

C) Rutherford's Gold-Foil experiment

D) Dalton's experiment

E) None of the above

23) What is the symbol for the element zinc? Zn

24) What is the symbol for the element chromium? Cr

25) Given the following data set, what is the average value and the standard deviation of these data?

22.5, 23.0, 21.7, 22.4, 22.9, 21.4, 23.3, 22.9, 23.0, 21.9

Average = 22.5 Standard deviation = 0.639